Investigations of the ecological, fluvial, and nearshore impacts of the Elwha River dam removal

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The U.S. Department of Interior will remove two dams from the Elwha River of Washingtonís Olympic Peninsula to restore the physical and biological integrity of the river ecosystem. The dams have interrupted coarse-sediment and organic-debris transport as well as anadromous and fluvial fish migration since the early 20th century profoundly impacting ecological processes, channel morphology, lotic communities, and nutrient dynamics. As lead research agency for Interior, the USGS is actively involved in the research and monitoring of the Elwha River restoration project. This poster presents ongoing USGS research regarding ecological, fluvial, and nearshore components of the restoration project. Documentation of baseline status of fish, aquatic macroinvertebrate, periphyton, and wildlife communities and marine-derived nutrient levels from multiple taxa prior to dam removal is an important first step in documenting both short- and long-term effects of dam removal and restoration. The sediment analysis integrates fluvial, estuarine, and marine processes and includes marine sediment mapping, monitoring fluvial and marine sediment transport. New sediment monitoring technologies including laser diffraction and acoustic backscatter will be tested and used to monitor the effects of delta erosion and channel re-stabilization on water and habitat quality. Nearshore research to date includes process-based numerical modeling of sediment dispersal and accumulation.